

Appl. No. 10/815,164  
Response Dated August 30, 2007  
Reply to Office Action of May 31, 2007

• • • R E M A R K S / A R G U M E N T S • • •

The Office Action of May 31, 2007 has been thoroughly studied. Accordingly, the changes presented herein for the application, considered together with the following remarks, are believed to be sufficient to place the application into condition for allowance.

By the present Amendment, independent claims 1, 7 and 17 have each been changed to recite a single layer of a polyimide copolymer and to further recite that the etching process is conducted after the single layer of the polyimide copolymer is laminated to the metallic foil and removes a portion of the metallic foil.

In addition, the independent claims has been changed to specifically recite that the resulting etched metal laminate is substantially curl-free (claims 1 and 7) or that the polyimide copolymer layer resists and does not exhibit curling (claim 17).

Support to a curling-free laminate can be found in applicants' working examples

The changes to the claims are fully supported by the original specification and are believed to more distinctly set forth applicants' invention and distinguish over the prior art of record.

Entry of the changes to the claims is respectfully requested.

Claims 1-3, 6-10, 15 and 17 remain pending in this application.

Claims 1-3 and 6 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,489,436 to Lin et al.

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Claims 7-10 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lin et al. as applied to claims 1-3 and 6 and further in view of U.S. Patent No. 5,290,909 to Chen et al.

Claims 1-3, 6, 10, 15 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,937,133 to Watanabe et al. in view of Lin et al.

For the reasons set forth below, it is submitted that all of the pending claims are allowable over the prior art of record and therefore, each of the outstanding rejections of the claims should properly be withdrawn.

Favorable reconsideration by the Examiner is earnestly solicited.

The Examiner has relied upon Lin et al. as disclosing:

...a metal laminate for use in a flexible wiring board, the laminate comprising a polyimide copolymer laminated with a metallic foil. The polyimide copolymer is a product of (1) a copolymer of (A) isopropylidene-bis-4-phthalic acid) dianhydride and (B) 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride, and (2) (C) 6-amino-2-(p-aminophenyl)-benzimidazole (see abstract).

Component (B) is used not more than 90% (see col. 2, ln. 14-16), giving the amount of (A) to be at least 10%, which read on the instantly claimed ranges.

With respect to the polyimide copolymer being resistant to curling, since the product of the combined references is the same, it would inherently have the same properly as claimed.

With respect to the laminate being subjected to an etching process, it has been within the skill in the art that process limitations would have no patentable weight in an article claim so long as the article is the same.

Jenq-Tain Lin is a common inventor with the Lin et al. reference and the present, commonly assigned, application. Moreover, the subject matter of Lin et al. is discussed on page 3 of the present specification.

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Accordingly, the present applicants are familiar with the teachings of the Lin et al. reference.

In Lin et al. there is no etching of the laminate. Moreover (or accordingly), the curling phenomena discussed in Lin et al. is limited to mechanical or physiological curling and not at all related to curling attributed to a chemical etching process.

Note, in this regard, Lin et al. teaches testing for curling as follows:

By aging at 260°C for 2 hours, a one-side laminate with no curling was obtained.

Thus, from the fact that 1) Lin et al. does not teach any etching process and 2) is only concerned with a curling phenomena that is cause by aging, it follows that Lin et al. does not teach or suggest a metal laminate that comprises a polyimide copolymer that is laminated to a metallic foil and which laminated is subjected to an etching process in which a portion of the metallic foil is removed and the resulting phenomena that the polyimide copolymer is resistant to curling resulting from the metal laminate etching process and does not exhibit curling.

The Examiner's position that: "since the product of the combined references is the same, it would inherently have the same properly as claimed" is inaccurate inasmuch as Lin et al does not teach an etching process. Therefore, Lin et al, does not teach a product (an etched product) that is the same as applicants' claimed invention and cannot be relied upon under 35 U.S.C. §102.

It is further noted again that inherency is quite immaterial if, as the record establishes here, one of ordinary skill in the art would not appreciate or recognize that inherent result. : *In re Shetty*, 195 USPQ 753 (CCPA 1977); *In re Spormann*, 150 USPQ 449 (CCPA 1966); *In re*

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*Adams*, 148 USPQ 742 (CCPA 1966).

The Examiner's statement that:

With respect to the laminate being subjected to an etching process, it has been within the skill in the art that process limitations would have no patentable weight in an article claim so long as the article is the same.

does not appear to be based upon patent or case law or what one skilled in the art would understand to be controlling law. Certainly one skilled in the art is not expected to understand patent examination or what is to be given patentable weight and what is not to be given patentable weight. This statement is not believed to be relevant.

The Examiner has Chen et al. as disclosing:

...polyimide film compositions applied to metallic foil substrates comprising the reaction product of applicant's claimed components (B), (C), (D1), and (D2) (abstract; example 1). Examples show the applicant's claimed ratios of (C) to (D1) or (D2) (examples 1-2).

In combining the teachings Lin et al. and Chen et al. the Examiner takes the position that:

...it would have been obvious....to have employed at least (D1) or (D2) in combination with (C) as the diamine component of Chen in the polyimide of Lin. The reason for that combination of two components of the same purpose has been considered prima facie obvious of providing the same purpose.

As in the case of Lin et al., Chen et al. fails to teach an etching process.

Accordingly, the Examiner's further reliance upon Chen et al. does not overcome the deficiencies noted above with respect to Lin et al.

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The Examiner has relied upon Watanabe et al. as disclosing:

...a printed circuit base, comprising a layer of polyimide and a conductive layer. The polyimide layer is formed by first forming a solution of polyimide in a solvent (DMAC), applying the polyimide solution on copper foil, heating to imidize the polyamic acid (see Examples 1-7). The laminate is then subjected to etching and does not curl, twist, or wrap (see abstract; col. 2, ln. 28-32).

Watanabe et al. corresponds to JP-B-5-22399 which is discussed on page 2 of applicants' specification.

As discussed:

JP-B-5-22399, JP-B-6-93537, JP-B-7-39161, etc. disclose metal laminates with distinguished dimensional stability, adhesiveness, flatness after etching, reduction in curling, etc., manufactured by forming a plurality layers of a polyimide resin layer having low thermal expansion and other polyimide resin layers on a conductor, where two or three kinds of polyimide precursor copolymers must be used, the individual copolymer solutions must be applied one by one to the conductor to form an insulation multilayer, and a ratio in thickness of the resulting individual polyimide layers must be specified, inevitably complicating the manufacture of the metal laminate thereby.

The present invention, as now claimed, requires only a single layer of polyimide to resist curling. This provides an obvious advantage over the complicated process taught, and believed to be necessary, by Watanabe et al.

Applicants' claimed invention excludes the multiple layers of polyimide that are required by Watanabe et al.

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is

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respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §102 as anticipating applicants' claimed invention.

Moreover, the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicants' claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejection of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

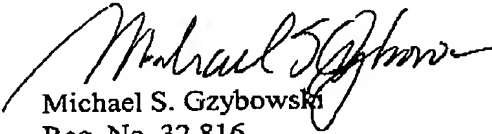
If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved; the Examiner is invited to contact applicants' patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of

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time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,

  
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